Linear models

George Savva

29/01/2020

## Introduction

You can use RMarkdown to write all your reports if you want to. Some people use it for everything!

First we need to estimate a linear model:

## Learn more about sjPlot with 'browseVignettes("sjPlot")'.

##   
## Call:  
## lm(formula = y ~ x)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.82116 -0.75864 -0.05298 0.61694 2.45359   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 0.10721 0.09602 1.117 0.267   
## x 1.03999 0.08636 12.042 <2e-16 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.9601 on 98 degrees of freedom  
## Multiple R-squared: 0.5967, Adjusted R-squared: 0.5926   
## F-statistic: 145 on 1 and 98 DF, p-value: < 2.2e-16

## Plotting with ggplot.

Now we can make a plot. This time I’ve set ‘echo=TRUE’ so you get the code and the output!

library(ggplot2)  
preds <- as.data.frame(predict(lm1, interval = "confidence"))  
preds2 <- as.data.frame(predict(lm1, interval = "predict"))  
  
ggplot(data=dat1, aes(x=x, y=y)) + geom\_point() +   
 geom\_ribbon(data=preds2, aes(ymin=lwr, ymax=upr), alpha=0.2,fill="red") +   
 geom\_ribbon(data=preds, aes(ymin=lwr, ymax=upr), alpha=0.5, fill="blue") +   
 geom\_line(data=preds, aes(y=fit)) + theme\_bw()

